

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (currently amended) A cable modem capable of reducing noise leakage on the upstream channel in a cable plant comprising:

an upstream transmitter having a control line on which the upstream transmitter can emit a control signal;

a switch component capable of being enabled and disabled by the control signal on the control line, such that the control signal from the upstream transmitter to the switch component enables the switch component thereby allowing a data signal to be transmitted on an upstream channel; and

an amplifier configured to be controlled directly by the control signal for amplifying the data signal from the upstream transmitter before being transmitted on the upstream channel;

wherein the upstream transmitter is configured to generate the control signal for implementing [[one of]] (i) a first mode of protection from noise leakage using only the switch if the amplifier cannot switch at a sufficient speed not to cause data loss, and (ii) a second mode of protection from noise leakage using both the amplifier and the switch component[, depending on whether]] if the amplifier can switch at a sufficient speed not to cause data [[packet collisions]] loss.

2. (original) A cable modem as recited in claim 1 wherein the switch component includes a plurality of switches.

3. (original) A cable modem as recited in claim 2 wherein the plurality of switches includes a first switch associated with transmission of the data signal.

4. (original) A cable modem as recited in claim 2 wherein the plurality of switches includes a second switch associated with termination of the cable plant.

5. (original) A cable modem as recited in claim 4 wherein the second switch is a shunt switch attached to a resistor.

6. (original) A cable modem as recited in claim 1 wherein the switch component is contained in the amplifier.

7. (original) A cable modem as recited in claim 6 wherein the amplifier is a variable amplifier.

8. (original) A cable modem as recited in claim 1 wherein the switch component is not contained in any other component in the cable modem.

9. (original) A cable modem as recited in claim 1 wherein the switch component is coupled by a data bus to a diplex filter.

10. (currently amended) A method of reducing noise leakage from a cable modem onto a cable plant, the method comprising:

activating a switch component and an amplifier in the cable modem by sending a control signal from an upstream transmitter directly to the switch component and the amplifier when the upstream transmitter is ready to transmit a data signal upstream;

transmitting the data signal on the upstream channel;

deactivating the switch component and the amplifier by sending the control signal from the upstream transmitter directly to the switch component and the amplifier after the data signal has been transmitted on the upstream channel thereby reducing noise leakage when the cable modem is not actively transmitting and reducing noise from the cable plant when the cable modem is not powered; and

generating the control signal for implementing [[one of]] (i) a first mode of protection from noise leakage using only the switch if the amplifier cannot switch at a sufficient speed not to cause data loss, and (ii) a second mode of protection from noise leakage using both the amplifier and the switch component[[, depending on whether]] if the amplifier can switch at a sufficient speed not to cause data [[packet collisions]] loss.

11. (original) A method as recited in claim 10 wherein activating a switch component in the cable modem further includes asserting a control line.

12. (original) A method as recited in claim 10 further comprising:

closing a series switch within the switch component thereby allowing a data signal to reach a diplex filter in the cable modem when the cable modem is ready to transmit a data signal on the upstream channel.

13. (original) A method as recited in claim 12 further comprising:

opening a shunt switch within the switch component when the series switch is closed.

14. (original) A method as recited in claim 10 further comprising:

closing a shunt switch within the switch component thereby terminating the cable plant when the cable modem is not transmitting a data signal on the upstream channel.

15. (original) A method as recited in claim 14 further comprising:

opening a series switch within the switch component thereby disconnecting a data signal path to a duplex filter when the shunt switch is closed.

16. (currently amended) ¹⁹ A method of reducing noise leakage from a cable modem onto a cable plant, the method comprising:

activating a switch component and an amplifier in the cable modem by sending a control signal from an upstream transmitter directly to the switch component and the amplifier when the upstream transmitter is ready to transmit a data signal upstream;

transmitting the data signal on the upstream channel;

deactivating the switch component and the amplifier by sending the control signal from the upstream transmitter directly to the switch component and the amplifier after the data signal has been transmitted on the upstream channel thereby reducing noise leakage when the cable modem is not actively transmitting and reducing noise from the cable plant when the cable modem is not powered;

determining whether an amplifier in the cable modem can enable at a sufficient speed to not cause data [[packet collisions]] loss; and

activating and deactivating [[only]] the switch component while activating the amplifier if the amplifier cannot enable at a sufficient speed.

17. (original) ¹⁶ A method as recited in claim 10 further comprising activating a variable amplifier to prepare for transmitting a data signal.

18. (currently amended) ²⁰ An apparatus for reducing noise leakage from a cable modem onto a cable plant, the apparatus comprising:

means for activating a switch component and an amplifier in the cable modem by sending a control signal from an upstream transmitter directly to the switch component and the amplifier when the upstream transmitter is ready to transmit a data signal upstream;

means for transmitting the data signal on the upstream channel;

means for deactivating the switch component and the amplifier by sending the control signal from the upstream transmitter directly to the switch component and the amplifier after the data signal has been transmitted on the upstream channel thereby reducing noise leakage when the cable modem is not actively transmitting and reducing noise from the cable plant when the cable modem is not powered; and

means for generating the control signal for implementing [[one of]] (i) a first mode of protection from noise leakage using only the switch if the amplifier cannot switch at a sufficient speed not to cause data loss, and (ii) a second mode of protection from noise leakage using both the amplifier and the switch component[, depending on whether]] if the amplifier can switch at a sufficient speed not to cause data [[packet collisions]] loss.

19-20. (canceled)

²³
21. (currently amended) A method of reducing noise leakage from a cable modem onto a cable plant, the method comprising:

activating a switch component in the cable modem by sending a control signal from an upstream transmitter to the switch component when the upstream transmitter is ready to transmit a data signal upstream;

transmitting the data signal on the upstream channel;

deactivating the switch component by sending the control signal from the upstream transmitter to the switch component after the data signal has been transmitted on the upstream channel thereby reducing noise leakage when the cable modem is not actively transmitting and reducing noise from the cable plant when the cable modem is not powered;

determining whether an amplifier in the cable modem can enable at a sufficient speed to not cause data [[packet collisions]] loss; and

activating and deactivating [[only]] the switch component while activating the amplifier if the amplifier cannot enable at a sufficient speed.

22-24. (canceled)

¹⁷
25. (previously presented) The method of claim 10 wherein activating the switch component and activating the amplifier are performed in a synchronized manner.

²¹
26. (previously presented) The apparatus of claim 18 further comprising means for activating the switch component and the amplifier in a synchronized manner.

24
27. (previously presented) A method of reducing noise leakage from a cable modem onto a cable plant, the method comprising:

activating a switch component and an amplifier in the cable modem by sending a control signal from an upstream transmitter directly to the switch component and the amplifier when the upstream transmitter is ready to transmit a data signal upstream;

transmitting the data signal on the upstream channel;

deactivating the switch component and the amplifier by sending the control signal from the upstream transmitter directly to the switch component and the amplifier after the data signal has been transmitted on the upstream channel thereby reducing noise leakage when the cable modem is not actively transmitting and reducing noise from the cable plant when the cable modem is not powered;

activating the switch component while keeping the amplifier activated if it is determined that the amplifier is not able to be activated fast enough to receive data without causing data loss; and

deactivating the switch component while keeping the amplifier activated if it is determined that the amplifier is not able to be deactivated fast enough to receive data without causing data loss.

25
28. (previously presented) An apparatus for reducing noise leakage from a cable modem onto a cable plant, the apparatus comprising:

means for activating a switch component and an amplifier in the cable modem by sending a control signal from an upstream transmitter directly to the switch component and the amplifier when the upstream transmitter is ready to transmit a data signal upstream;

means for transmitting the data signal on the upstream channel;

means for deactivating the switch component and the amplifier by sending the control signal from the upstream transmitter directly to the switch component and the amplifier after the data signal has been transmitted on the upstream channel thereby reducing noise leakage when the cable modem is not actively transmitting and reducing noise from the cable plant when the cable modem is not powered;

means for activating the switch component while keeping the amplifier activated if it is determined that the amplifier is not able to be activated fast enough to receive data without causing data loss; and

means for deactivating the switch component while keeping the amplifier activated if it is determined that the amplifier is not able to be deactivated fast enough to receive data without causing data loss.

¹⁸
~~29. (currently amended)~~ A method of reducing noise leakage from a cable modem onto a cable plant, the method comprising:

~~activating a switch component and an amplifier in the cable modem by sending a control signal from an upstream transmitter directly to the switch component and the amplifier when the upstream transmitter is ready to transmit a data signal upstream;~~

~~transmitting the data signal on the upstream channel; and~~

~~deactivating the switch component and the amplifier by sending the control signal from the upstream transmitter directly to the switch component and the amplifier after the data signal has been transmitted on the upstream channel thereby reducing noise leakage when the cable modem is not actively transmitting and reducing noise from the cable plant when the cable modem is not powered;~~

The method of claim 10 wherein the amplifier is activated before the switch is activated, and the switch is deactivated before the amplifier is deactivated.

²⁸
~~30. (currently amended)~~ An apparatus for reducing noise leakage from a cable modem onto a cable plant, the apparatus comprising:

~~means for activating a switch component and an amplifier in the cable modem by sending a control signal from an upstream transmitter directly to the switch component and the amplifier when the upstream transmitter is ready to transmit a data signal upstream;~~

~~means for transmitting the data signal on the upstream channel; and~~

~~means for deactivating the switch component and the amplifier by sending the control signal from the upstream transmitter directly to the switch component and the amplifier after the data signal has been transmitted on the upstream channel thereby reducing noise leakage when the cable modem is not actively transmitting and reducing noise from the cable plant when the cable modem is not powered;~~

The apparatus
 The method of claim 18 wherein the amplifier is activated before the switch is activated, and the switch is deactivated before the amplifier is deactivated.